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EXAMINER

PUTTLITZ, KARL J

ART UNIT PAPER NUMBER

1621

DATE MAILED: 06/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/664,105

Applicant(s)

GLADYSZ ET AL.

Examiner

Karl J. Puttlitz

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-70 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-70 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 10/13/2004.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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**DETAILED ACTION**

**DETAILED ACTION**

***Election/Restrictions***

Claims 1-70 generic to a plurality of disclosed patentably distinct species comprising a fluorous compound and an adsorbant. Applicant is required under 35 U.S.C. 121 to elect a single disclosed species, even though this requirement is traversed.

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

During a telephone conversation with William Kuss on 5/19/2005 an election was made of fluorous phosphine as the fluorous compound and silica gel as the adsorbant.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-70 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The claims cover a chemical reaction between a fluorous compound and a chemical reagent.

To satisfy the written-description requirement, the specification must describe every element of the claimed invention in sufficient detail so that one of ordinary skill in the art would recognize that the inventor possessed the claimed invention at the time of filing. *Vas-Cath*, 935 F.3d at 1563; *see also Lockwood v. American Airlines, Inc.*, 107 F.3d 1565, 1572 (Fed. Cir. 1997) (patent specification must describe an invention and do so in sufficient detail that one skilled in the art can clearly conclude that "the inventor invented the claimed invention"); *In re Gosteli*, 872 F.2d 1008, 1012 (Fed. Cir. 1989) ("the description must clearly allow persons of ordinary skill in the art to recognize that [the inventor] invented what is claimed").

Courts have stated that "[i]n claims involving [non-genetic] chemical materials, generic formulae *usually indicate with specificity what the generic claims encompass*. One skilled in the art can distinguish such a formula from others and *can identify many of the species* that the claims encompass. Accordingly, such a formula is normally an adequate description of the claimed genus." *Regents of the University of California v. Eli*

*Lilly & Co.*, 119 F.3d 1559, 1568 (Fed. Cir. 1997), *cert. denied*, 523 U.S. 1089 (1998)., (emphasis added).

There is no such specificity here, nor could one skilled in the art identify any particular fluorous compound or chemical reactant encompassed by the claims.

Moreover, a fluorous compound or chemical reactant. contains almost no information by which a person of ordinary skill in the art would understand that the inventors possessed the claimed invention. At best, it simply indicates that one should test an infinite number of compounds.

Claims 1-70 rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for hydroalkoxation or hydrosilation reactions does not reasonably provide enablement for all reactions between a fluorous compound and a chemical reactant. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims.

"The standard for determining whether the specification meets the enablement requirement [in accordance with the statute] was cast in the Supreme Court decision of *Mineral Separation v. Hyde*, 242 U.S. 261, 270 (1916) which postured the question: is the experimentation needed to practice the invention undue or unreasonable? That standard is still the one to be applied. *In re Wands*, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988). Accordingly, even though the statute does not use the term

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"undue experimentation," it has been interpreted to require that the claimed invention be enabled so that any person skilled in the art can make and use the invention without undue experimentation. *In re Wands*, 858 F.2d at 737, 8 USPQ2d at 1404 (Fed. Cir. 1988). See also *United States v. Telectronics, Inc.*, 857 F.2d 778, 785, 8 USPQ2d 1217, 1223 (Fed. Cir. 1988) ("The test of enablement is whether one reasonably skilled in the art could make or use the invention from the disclosures in the patent coupled with information known in the art without undue experimentation."). A patent need not teach, and preferably omits, what is well known in the art. *In re Buchner*, 929 F.2d 660, 661, 18 USPQ2d 1331, 1332 (Fed. Cir. 1991); *Hybritech, Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1384, 231 USPQ 81, 94 (Fed. Cir. 1986), *cert. denied*, 480 U.S. 947 (1987); and *Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 1463, 221 USPQ 481, 489 (Fed. Cir. 1984). Determining enablement is a question of law based on underlying factual findings. *In re Vaeck*, 947 F.2d 488, 495, 20 USPQ2d 1438, 1444 (Fed. Cir. 1991); *Atlas Powder Co. v. E.I. du Pont de Nemours & Co.*, 750 F.2d 1569, 1576, 224 USPQ 409, 413 (Fed. Cir. 1984)." See M.P.E.P. § 2164.

In the instant case the claims cover all reactions between a fluororous compound and a chemical reactant. Based on the above standards, the disclosure must contained sufficient information to enable one skilled in the pertinent art to use this invention without undue experimentation. See M.P.E.P. 2164.01. Given the scope of the claims, it does not.

Specifically, the claims broadly recite: all reactions between a fluororous compound and a chemical reactant. The specification and the examples do not provide sufficient

disclosure that would provide one of ordinary skill guidance to practice the invention, given the infinite amount of possible permutations of the claimed elements. In this regard, the disclosure does teach those of ordinary skill how to select appropriate fluororous compounds and a chemical reactants, where the instant specification only describes hydroalkoxation or hydrosilation reactions with the listed reagents and catalysts.

The examiner understands that there is no requirement that the specification disclose every possible embodiment if there is sufficient guidance given by knowledge in the art (See M.P.E.P. § 2164.05(a) "[t]he specification need not disclose what is well-known to those skilled in the art and preferably omits that which is well-known to those skilled and already available to the public. *In re Buchner*, 929 F.2d 660, 661, 18 USPQ2d 1331, 1332 (Fed. Cir. 1991); *Hybritech, Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1384, 231 USPQ 81, 94 (Fed. Cir. 1986), *cert. denied*, 480 U.S. 947 (1987); and *Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 1463, 221 USPQ 481, 489 (Fed. Cir. 1984).").

However, the instant case goes beyond what is known in the art, because the specification does not offer any guidance on how one of ordinary skill would go about practicing the invention for of every reaction with every fluororous compound or reactant.

Applicant is reminded of the heightened enablement for chemical inventions. Specifically, the amount of guidance or direction needed to enable the invention is inversely related to the amount of knowledge in the state of the art as well as the predictability in the art. *In re Fisher*, 427 F.2d 833, 839, 166 USPQ 18, 24 (CCPA 1970).

The "amount of guidance or direction" refers to that information in the application, as originally filed, that teaches exactly how to make or use the invention. The more that is known in the prior art about the nature of the invention, how to make, and how to use the invention, and the more predictable the art is, the less information needs to be explicitly stated in the specification. In contrast, if little is known in the prior art about the nature of the invention and the art is unpredictable, the specification would need more detail as to how to make and use the invention in order to be enabling. [I]n the field of chemistry generally, there may be times when the well-known unpredictability of chemical reactions will alone be enough to create a reasonable doubt as to the accuracy of a particular broad statement put forward as enabling support for a claim. This will especially be the case where the statement is, on its face, contrary to generally accepted scientific principles. Most often, additional factors, such as the teachings in pertinent references, will be available to substantiate any doubts that the asserted scope of objective enablement is in fact commensurate with the scope of protection sought and to support any demands based thereon for proof. [Footnote omitted.]

Here, the requirement for enablement is not met since the claims go far beyond the enabling disclosure. Base on the forgoing claims 1-70 are *prima facie*, non-enabled for their full scope.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:



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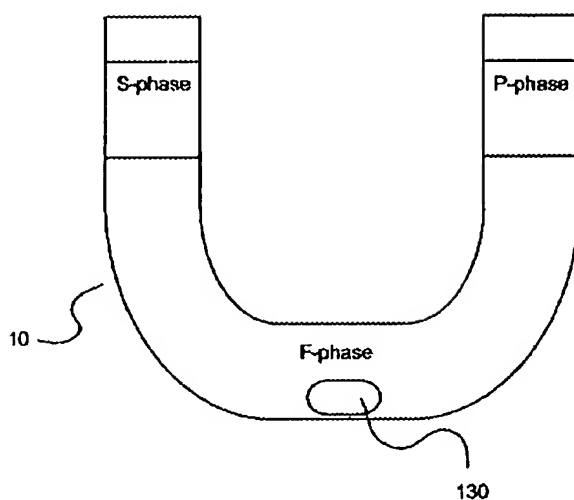
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-70 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent No.6,734,318 to Curran et al. (Curran) in view of WO 02/04120, as evidenced by counterpart U.S. patent Application Publication No. 2003/0148878 by Vaughan (Vaughan).

The rejected claims cover, inter alia, a method for conducting a chemical reaction in a non-fluorous medium using a fluorous compound in the presence of a solid adsorbant containing a fluorous domain and at least one chemical reactant, the method comprising: contacting the fluorous compound and the at least one chemical reactant under conditions that form at least one product. See claim 1.

The claims also cover those embodiments wherein the temperature of the system is adjusted. See claim 58.

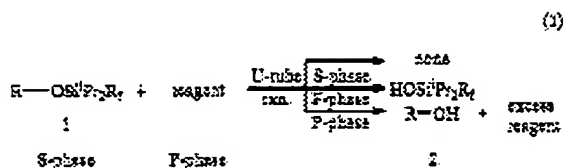
Curran teaches a reaction system with regard to Fig. 1:



**Figure 1**

wherein a fluorinated silyl ether 1 was charged to one side of U-tube 10 of FIG. 1 in an organic solvent (substrate phase or S-phase; sometimes also referred to herein as the first non-fluorous phase) and the reagent for the cleavage was charged to another side of U-tube 10 in an organic solvent (product phase or P-phase; sometimes also referred to a the second non-fluorous phase). The two phases were separated by a fluorous liquid/solvent (fluorous phase or F-phase) as illustrated in FIG. 1. The fluorinated silyl ether migrated from S-phase to P-phase over time. When the fluorinated silyl ether reached the P-phase, it underwent a reaction (in this example, a detagging or deprotection reaction) by a cleavage reagent in the P-phase to yield an organic alcohol 2 and a fluorous silyl by-product. See description bridging columns 9 and 10.

The reaction is also described by the reaction scheme at the top of column 9:



- a: R=2-(2-naphthyl)ethyl,  $R_f=C_8F_{17}CH_2CH_2$   
 b: R=2-(2-naphthyl)ethyl,  $R_f=C_{10}F_{21}CH_2CH_2$   
 c: R=2-(2-naphthyl)ethyl,  $R_f=C_6F_{13}CH_2CH_2$   
 d: R=2-(2-naphthyl)ethyl,  $R_f=C_4F_9CH_2CH_2$   
 e: R=2-(2-naphthyl)ethyl,  $R_f=^tPr$   
 f: R-(S)-(-)-1-(2-naphthyl)ethyl,  $R_f=C_8F_{17}CH_2CH_2$   
 g: R- $PhCH=CHCH_2$ ,  $R_f=C_8F_{17}CH_2CH_2$   
 h: R- $Ph(CH_2)_5$ ,  $R_f=C_8F_{17}CH_2CH_2$   
 i: R= $CH_3(CH_2)_{11}$ ,  $R_f=C_8F_{17}CH_2CH_2$   
 j: R-cholestanyl,  $R_f=C_8F_{17}CH_2CH_2$   
 k: R=2-adamantaneeethyl,  $R_f=C_8F_{17}CH_2CH_2$   
 l: R=2-adamantaneeethyl,  $R_f=C_6F_{13}CH_2CH_2$   
 m: R-(R)-(+)-2-phenylpropyl,  $R_f=C_8F_{17}CH_2CH_2$

The difference between the process described by Curran and the rejected claims is that Curran fails to explicitly describe the fluororous compounds recited in the claims. It is for this proposition that the examiner joins Vaughan. Specifically, Vaughan teaches that fluororous phosphine catalysts are common place in the multiphasic reaction systems. See for example the description beginning at paragraph 0059:

[0059] The known and preferred catalysts for the FBC approach given in the following are intended only as examples:

[0060]  $\text{I}=\text{H}(\text{CO})[\text{P}(\text{CH}_2\text{CH}_2\text{C}_6\text{F}_{13})_2]_2$ [0061]  $\text{HCl}(\text{CO})\text{P}(\text{F}_2\text{C}_6\text{F}_{13})_3]_2$ [0062]  $\text{R}_2\text{H}(\text{CO})[\text{P}(\text{CH}_2\text{CH}_2\text{C}_6\text{F}_{13})_2]_2$ 0063]  $R_2C\equiv PCH_2CH_2(CF_2)_nCF_3$ , where  $n=5$  or  $7$ .

[0064]  $Rn(H_2)Cl[PCH_2CH_2(CF_2)_nCF_2]_3$  where  $n=5$  or 7.

[0065]  $[R_2Cl(CO)(P(C_2H_4C_6F_5)_2)_2]$ 

[0066]  $[Pc\{(4-F_{13}C_9C_6H_4)_2PCH_2CH_2P(C_6H_4C_9F_{13}-4)_2\}_2]$  and

[0067]  $[(R_2HCl((4-F_{1.3}C_6H_4)_2PCH_2CH_2P(C_6H_4C_3F_3-4h)_2)_2]$ .

[0068] These catalysts are preferably used in the present invention.

Therefore, those of ordinary skill would have been motivated to modify Curran to include the specific fluororous compounds described in Vaughan since Vaughan teaches that these compounds are catalysts in multiphasic systems, and therefore, compel a reasonable expectation of success in these systems.

With regard to the claimed elements that require adjusting the reaction temperature, those of ordinary skill would expect that the temperature of the multiphasic systems of the applied references to also change, and therefore, any observed physical or chemical change in the system would be considered a necessary characteristic of those multiphasic systems of the applied references. Applicant is invited to submit any objective evidence to the contrary.

Therefore, the claims are prima facie obvious in view of Curran and Vaughan since these references teach or suggest the elements of the rejected claims with a reasonable expectation of success.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karl J. Puttlitz whose telephone number is (571) 272-0645. The examiner can normally be reached on Monday to Friday from 9 a.m. to 5 p.m.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann Richter, can be reached at telephone number (571) 272-0646. The

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fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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